

one or more font textures to a first memory device on the gaming machine, b) displaying a menu of games of chance available on the gaming machine; receiving one or more inputs signals containing information used to select one or more of games of chance listed on said menu, c) generating an animated surface texture in the 3-D gaming environment, d) storing one or more of the rendered two-dimensional images to a memory device located on the gaming machine or e) loading one or more font textures to a font library in the memory device on the gaming machine.

[0021] Another aspect of the present invention provides a method of providing textual information for a gaming machine that is operable i) to receive cash or indicia of credit for a wager on a game of chance and ii) to output cash or an indicia of credit as an award for the game of chance where the gaming machine comprises a master gaming controller, a display device, a memory device and a 3-D graphical rendering system. The method may be generally characterized as comprising: a) generating a font texture comprising a plurality of characters drawn in a particular font style where the font texture comprises one or more font parameters for defining global characteristics of the plurality of characteristics in the font texture and one or more character parameters for defining characteristics of each character; b) determining a text string comprising a plurality of characters; c) determining a text page surface for guiding a placement of the plurality of characters in a 3-D gaming environment, d) for each character in the text string, sizing a 3-D object for the character using the font parameters and character parameters; mapping a texture of the character from the font texture to the 3-D object and placing each 3-D object on the text page surface; e) applying one or more typesetting rules to the 3-D objects for improving a visual quality of the text string rendered from the 3-D objects; and f) rendering the text string using the 3-D graphical rendering system.

[0022] In particular embodiments, the method may further comprise displaying the rendered text string on the display device or locating a first character in the font texture using character locating coordinates. The 3-D graphical rendering system may be compatible with OpenGL. Further, the game of chance may be selected from the group consisting of a slot game, a keno game, a poker game, a pachinko game, a video black jack game, a bingo game, a baccarat game, a roulette game, a dice game and a card game.

[0023] In other embodiments, the method may further comprise storing one or more generated font textures in a font library in the memory device on the gaming machine. The font library further comprises a plurality of font textures with the same font style and different font parameters or character parameters. The font library may further comprise a plurality of font textures with different font styles. The font parameters in the font texture may be one or more of a font name, a font style, a font typeface, a font weight, a font baseline, a font ascent, a font descent, a font slant, a font maximum height, a font maximum width and a number of characters in the font texture. The character parameters in the font texture may be one or more of a character height, a character width, a character ascent, a character descent, a character origin, a character shape or character location coordinates for locating the character in the font texture.

[0024] Yet another aspect of the present invention provides a gaming machine. The gaming machine may gener-

ally be characterized as comprising: 1) a housing; 2) a master gaming controller coupled to the housing designed or configured to control a game of chance played on the gaming machine; 3) a three-dimensional (3-D) gaming environment for rendering at least a game outcome presentation for the game of chance stored on a memory device on the gaming machine; 4) game logic for rendering one or more two-dimensional images derived from 3-D objects in the 3-D gaming environment wherein at least one of the 3-D objects is a 3-D text object adapted for conveying textual information; 5) at least one display devices for displaying the rendered one or more two-dimensional images where the gaming machine is operable i) to receive cash or indicia of credit for a wager on the game of chance and ii) to output cash or an indicia of credit as an award for the game of chance.

[0025] The gaming machine may further comprise one or more of a) a 3-D graphical rendering system for rendering the one or more 2-D images, b) game logic designed or configured for rendering textual information from a gaming machine maintenance operation in the 3-D gaming environment using a plurality of the 3-D text objects and to capture the gaming machine maintenance operation on the one or more two-dimensional images, c) game logic designed or configured for rendering textual information from one or more of i) a gaming machine operational feature, ii) a gaming machine maintenance operation in the 3-D gaming environment, iii) an attract mode feature, iv) a promotional feature, v) casino information or vi) a bonus game presentation using a plurality of the 3-D text objects and to capture the gaming machine operation feature on the one or more two-dimensional images, d) a graphical processing unit, separate from said master gaming controller, designed or configured to execute the graphical operations used to render one or more two-dimensional images derived from the 3-D objects in the 3-D gaming environment, e) a network interface board designed or configured to allow the master gaming controller to communicate rendered textual information to a remote display device, f) a multi-headed video card, g) a memory device for storing font textures in a font library on the gaming machine. The font library further may comprise a plurality of font textures with the same font style and different font parameters or character parameters or a plurality of font textures with different font styles.

[0026] Another aspect of the invention pertains to computer program products including a machine-readable medium on which is stored program instructions for implementing any of the methods described above. Any of the methods of this invention may be represented as program instructions and/or data structures, databases, etc. that can be provided on such computer readable media.

[0027] These and other features of the present invention will be presented in more detail in the following detailed description of the invention and the associated figures.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0028] FIG. 1 is a perspective drawing of a 3-D virtual gaming environment implemented on a gaming machine for one embodiment of this invention.

[0029] FIG. 2 is a perspective drawing of virtual slot reels in a 3-D virtual gaming environment implemented on a gaming machine for one embodiment of this invention.